REPORT

AIR QUALITY IMPACT ANALYSIS

Pankey Sand and Gravel

San Luis Obispo County, California

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Golder Associates

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EXECUTIVE SUMMARY

Golder Associates Inc. (Golder) has prepared this air quality technical report to describe the emissions from the proposed sand and gravel mining operation to be located along a portion of the Salinas River at 4444 Indian Valley Road. Three excavation areas in close proximity will provide an annual yield of 105,500 cubic yards of product. Processing operations will include screening and segregating material into product storage areas. As material is sold, it will be loaded onto a truck for transport offsite to clients.

Sand will be removed from the riverbed using a scraper (or two in series) towed behind a track type diesel fueled tractor. The loaded scrapers will be towed to the nearest stockpile area where the load will be off-loaded to form a temporary stockpile. Travel of the tractor on gravel roads in anticipated to be a source of particulate matter with an aerodynamic diameter of less than ten microns (PM_{10}), a criteria air pollutant. Diesel exhaust, a toxic air contaminant, is considered particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$).

The facility hours of operation will occur from 7:00 am to 5:00 pm Monday through Friday and from 7:00 am to 12:00 pm on Saturday. Sand excavation using the scraper will occur only during the dry summer months over an estimated 83 days. The scrapers will operate for up to 7 hours per day within the normal business hours of the facility.

Haul roads, storage piles, and material handling operations have the potential to generate fugitive dust emissions comprised on part of PM_{10}. Emissions from these sources have been estimated using emission factors taken from USEPA Document AP-42, Compilation of Emission Factors (AP-42). The other source of emissions from the project is the combustion of diesel fuel in internal combustion engines. Diesel engines are used in haul trucks, the heavy equipment, and to power the screening unit. Diesel combustion results in emissions of the criteria air pollutants PM_{10}, nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), and reactive organic gasses (ROG). Emissions of each of these pollutants have been calculated.

Mitigation measures include the use of Tier III engines in the loader and tractor and water sprays to eliminate fugitive particulate emissions. Mitigation of road dust will occur through the use of dust suppressants and the application of gravel to dirt roads.

Mitigated emissions of each of the criteria pollutants are less than the SLOAPCD Tier 2 significance thresholds.

1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this air quality technical report to describe the emissions from the proposed sand and gravel mining operation to be located along a portion of the Salinas River at 4444 Indian Valley Road, approximately 0.25 miles northeast of the community of San Miguel and 1.25 miles north of the Cross Canyon Road intersection. Three excavation areas in close proximity will provide an annual yield of 105,500 cubic yards of product. The excavated sand and gravel will be moved to a holding area, wherein a one year supply of material will be stockpiled for future processing. Processing operations will include screening and segregating material into product storage areas. As material is sold, it will be loaded onto a truck for transport offsite to the client.

Section 2 of this report describes the facility where the materials are mined, processed, and stockpiled prior to sale. Each processing step emission point is described along with the identification of the pollutant(s) of concern. The operating schedule and list of equipment associated with each processing step is also discussed. Section 3 presents the emissions inventory including greenhouse gas emissions. Section 4 presents a summary of the emissions and the level of significance of the emissions. Section 5 discusses the mitigation measures that have been included that are primarily designed to maintain compliance with existing regulations of the San Luis Obispo Air Pollution Control District to which the facility and equipment will be subject. Section 6 contains closing remarks.

2.0 PROJECT DESCRIPTION AND POLLUTANTS OF CONCERN

Pankey Sand and Gravel intends to operate a sand production facility in the Salinas River valley near San Miguel, California. The facility will collect and stockpile sand during the dry summer months and provide sand for local construction projects throughout the year. Production is anticipated to begin in the summer of 2010.

The facility is located off of Indian Valley Road in San Luis Obispo County. Sand excavation will take place along an approximately 1.5 mile stretch of the Salinas River with a small amount taken from the Vineyard Creek. The entire facility consists of three different extraction and processing area, each with its own sand stockpile. The three areas are designated as the Salinas River South Excavation Area, Salinas River North Excavation Area, and the Vineyard Creek Excavation Area. The three areas for excavation showing the length of the haul roads and storage areas are shown in Appendix A.

2.1 Process description

During the wet season, the flow of the Salinas River and its tributary streams deposit sand in the riverbed. Pankey Sand and Gravel intends to excavate the sand from the project site during the dry season when the river is not flowing. Sand will be removed from the riverbed using a scraper (or two in series) towed behind a track type diesel fueled tractor. The scrapers will remove approximately the top two inches of sand from the riverbed on each pass. The loaded scrapers will be towed to the nearest stockpile area where the load will be off-loaded to form a temporary stockpile. Travel of the tractor on gravel roads is anticipated to be a source of particulate matter with an aerodynamic diameter of less than ten microns (PM_{10}), a criteria air pollutant. Diesel exhaust, a toxic air contaminant, is considered particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$).

Each of the three excavation areas will have a separate stockpile area. A front end loader will transfer the sand from the temporary stockpile to the hopper of a grizzly screen. The screen will remove larger material while allowing the fine sand to pass to a stacking conveyor. The sand will drop off of the top of the conveyor to form the product stockpile. From the product stockpile, haul trucks will be loaded using the same front end loader used to transfer material to the screen. The haul trucks are estimated to each have the capacity to haul 20 cubic yards of material. The engine driving the screen, the front-end loader and the haul trucks are also diesel fueled and emit $PM_{2.5}$.

The total amount of sand to be removed will depend on the quantity deposited during the wet season. An estimated total of 105,500 cubic yards of sand will be removed from the riverbed each year at this facility. The total includes 36,000 cubic yards from the Salinas River North Excavation Area, 60,000 cubic yards from the Salinas River South Excavation Area, and 9,500 cubic yards from the Vineyard Creek Excavation Area.

2.2 Operations schedule

The facility hours of operation will occur from 7:00 am to 5:00 pm Monday through Friday and from 7:00 am to 12:00 pm on Saturday. During these times, the facility will be open to dispensing sand to customers. The facility will be open year round for the sale of processed sand. However, the sand extraction and processing will take place on a more limited schedule.

Sand excavation using the scraper will occur only during the dry summer months over an estimated 83 days. The scrapers will operate for up to 7 hours per day within the normal business hours of the facility. After sufficient material is collected in the temporary stockpiles, the loader will be used to transfer material to the screen. The sand excavation by scraper will not take place concurrently with the material screening.

2.3 Equipment list

A track type tractor with a 410 horsepower Tier III certified engine will be used to pull one or two scrapers. Each scraper has a rated capacity of 18.8 cubic yards. One rubber tire loader with a 198 horsepower Tier III engine will be used to load both the screening unit and the haul trucks. The loader has a rated capacity of 4 cubic yards. The screening unit has the capacity to process up to 240 tons of material per hour. The screen will be powered by an 80 horsepower diesel engine. The screen will be a portable unit subject to the requirement of the California Portable Equipment Registration Program (PERP).

The specifications for the three diesel-fueled engines are shown in Appendix B.

3.0 PROJECT EMISSIONS

Emissions from the project have been calculated according to established procedures as described in the SLOAPCD CEQA manual using information provided by Pankey on the expected operation of the facility. Emission sources include haul roads, storage piles, screening equipment, material handling operations, and diesel exhaust from heavy equipment and haul trucks. Emissions from each source have been calculated using approved tools and are presented in Tables 1 through 5. Total annual emissions and maximum daily emissions have been presented and compared to the SLOAPCD significance thresholds.

3.1 Fugitive Dust

Haul roads, storage piles, and material handling operations have the potential to generate fugitive dust emissions comprised in part of particulate matter less than ten microns in aerodynamic diameter (PM10). Emissions from these sources have been estimated using emission factors taken from USEPA Document AP-42, Compilation of Emission Factors (AP-42).

The process begins with the extraction of sand from the riverbed using scrapers. According to AP-42 Section 11.19.1 – Sand and Gravel Processing, process emissions are often negligible. At the Pankey site, the riverbed is made up of sand that includes very little, if any, silt that would be disturbed and emitted during scraper operations. The project site is suitable for sand extraction because the natural process of silt separation from sand that takes place in the riverbed during the wet months of the year.

After the scrapers leave the sandy riverbed and enter the haul road leading to the processing area, fugitive dust emissions are more likely. Emissions from this road have been estimated using predictive emissions equation 1a in AP-42 Section 13.2.2 – Unpaved Roads. This equation uses the estimated silt content in the road surface material and the vehicle weight to calculate an emission factor to calculate emissions based on the number of vehicle miles traveled. Emissions from this haul road will be mitigated by the application of water spray to the surface on a regular basis. This water application is anticipated to reduce emissions by a minimum of 80 percent compared to uncontrolled emissions.

Although the sand will not include a large quantity of fine particulate matter that could be emitted, some emissions could result from processing activities. As a conservative estimate, emissions from the processing operation including loading, screening, stockping, and conveying operations have been calculated using emissions factors from AP-42 Section 11.19.2 - Crushed Stone Processing and Pulverized Mineral Processing. Emissions from these sources will be mitigated with water spray if visual emissions are observed.

Emissions from the haul trucks used to deliver the finished product have also been calculated using AP-42 Section 13.2.2. Emissions have been based on an estimated maximum of 18 trucks per day. Emissions will be mitigated as necessary through water application on the roads.

3.2 Diesel Emissions

The other source of emissions from the project is the combustion of diesel fuel in internal combustion engines. Diesel engines are used in haul trucks, the heavy equipment, and to power the screening unit. Diesel combustion results in emissions of the criteria air pollutants PM10, nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide, (SO2), and reactive organic gasses (ROG). Emissions of each of these pollutants have been calculated.

Emissions from the haul trucks have been estimated using the California Air Resources Board Emissions Factor Model, EMFAC2007 (v. 2.3). The model provided emission estimates for heavy duty trucks (HDD) and typical pick-up trucks (LDT2). The EMFAC2007 model accounts for the anticipated make up of the vehicle fleet and effects of inspection and maintenance programs in place to limit diesel emissions. Emissions calculated for this analysis are based on the anticipated 2010 truck fleet. As older vehicles are replaced by newer trucks that meet modern emission standards, emissions are expected to decrease.

Emissions from the remaining engines were calculated using emission factors compiled by the South Coast Air Quality Management District (SCAQMD) for use in CEQA evaluations. These factors were developed to represent the average emissions for diesel engines used in various applications. The average emission factors account for older engines still in service as well as newer engines that meet stringent emissions requirements. Emission factors are presented by equipment type and horsepower. The engines used in the tractor that pulls the scraper and in the loader will be certified TIER III engines. These engines will be required to meet a NOx emission limit of 2.5 grams/horsepower-hour. This emission factor has been included in the calculations for the loader and tractor to account for the lower emissions from this equipment compared to the average.

3.3 Greenhouse Gas Emissions

Greenhouse gasses, primarily in the form of carbon dioxide, will be emitted due to the combustion of diesel fuel in the internal combustion engines. Direct emissions of greenhouse gasses from the project are summarized in Table 1. The total displayed represents direct emissions from equipment associated with the project. The total does not include effects on indirect emissions and does not necessarily represent the net effect on greenhouse gas emissions resulting from the project.

4.0 SUMMARY OF EMISSIONS AND LEVEL OF SIGNIFICANCE

Emissions presented in Table 1 show maximum daily emissions and total annual emissions. Maximum daily emissions are based on the scrapers operating continuously for 7 hours in a day. In addition, hauling emissions are included in the maximum emissions total. Scrapers and the screening operation will not occur at the same time. Only the higher emission rate source (scraper emissions) has been included in the estimate of maximum daily emissions.

The levels of significance for this project are 25 pounds of PM_{10}, NOx, and ROG on the highest emitting day. In addition, the Tier III levels of significance are 10 tons per year for PM_{10}, NOx, and ROG.

5.0 MITIGATION

Emissions of NOx and PM10 could exceed the Tier 2 significance thresholds. Mitigation measures include the use of Tier II engines in the loader and tractor and water sprays to eliminate fugitive particulate emissions. Mitigation of road dust will occur through the use of dust suppressants and the application of gravel to dirt roads.

The use of the mitigation measures included herein result in the emissions of the pollutants of concern at levels less that the Tier 2 significance threshold.

6.0 CLOSING

The air quality impacts quantified in this analysis combined with the proposed mitigation measures will result in impacts from this project that can be mitigated to less than significant levels.

This report has been prepared and reviewed by the undersigned.

GOLDER ASSOCIATES INC.

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TABLES

Table 1
Pankey Sand and Gravel
Project Emissions Summary

Total Emissions (lb/day)	ROG	CO	NOX	SOX	PM	CO2	CH4
North Salinas	3.8	22.0	24.4	0.04	12.45	1944.1	0.3
South Salinas	3.8	21.8	24.1	0.03	11.10	1909.3	0.3
Vineyard Creek	3.8	21.9	24.2	0.03	9.85	1915.1	0.3

Total Emissions (tpy)	ROG	CO	NOX	SOX	PM	CO2	CH4
North Salinas	0.4	2.7	3.0	0.004	1.3	174.9	0.03
South Salinas	0.4	2.6	3.0	0.004	0.9	169.8	0.03
Vineyard Creek	0.4	2.6	3.0	0.004	0.8	170.6	0.03

Note: Worst case day assumes continuous scraper operation without screening.

Table 2
Pankey Sand and Gravel
Fugitive Emissions from Operations

Earth Moving							Un-controlled PM10 (lbs/day)	Un-controlled PM2.5 (lbs/day)	Control Efficiency	Controlled PM10 Emissions (lbs/day)	Controlled PM2.5 Emissions (lbs/day)	Days/year	Controlled PM10 Emissions (tpy)	Controlled PM2.5 Emissions (tpy)
Scraper Travel (North Salinas)	$k(s/10)^a(W/3)^b$	lb/VMT	64.0 W (tons)	7.7 VMT/day			33.62	3.36	80%	6.72	0.67	82.9	0.279	0.028
Scraper Travel (South Salinas)	$k(s/10)^a(W/3)^b$	lb/VMT		10.3 VMT/day			44.82	4.48	80%	8.96	0.90	82.9	0.371	0.037
Scraper Travel (Vineyard creek)	$k(s/10)^a(W/3)^b$	lb/VMT		3.8 VMT/day			16.81	1.68	80%	3.36	0.34	82.9	0.139	0.014
Rubber-track Loader [5]	$k(s/10)^a(W/3)^b$	lb/VMT	17.5 W (tons)		6.0288	mile/day	17.28	17.57	80%	3.46	3.51	118	0.204	0.207
Drop to Hopper [8]	0.0011	lb/ton					2.64	1.32	96%	0.11	0.06	63	0.003	0.002
Screen [8]	0.0087	lb/ton	240 lb/hr	10 hours/day			20.88	10.44	91%	1.78	0.89	63	0.056	0.028
Drop to Stockpile [8]	0.0011	lb/ton					2.64	1.32	96%	0.11	0.06	63	0.003	0.002
Stockpile	380	lb/acre/yr	7				7.29	3.64	80%	1.46	0.73	63	0.046	0.023
Truck Loading [8]	0.0011	lb/ton	491.9 tons/day				0.54	0.27	96%	0.02	0.01	260	0.003	0.001
Trucks (water) [5]	$k(s/10)^a(W/3)^b$	lb/VMT	15 W (tons)	0.5 VMT/day			1.34	0.67	80%	0.27	0.13	260	0.035	0.017
Operations Totals						**North Salinas Scrapers**	33.62	3.36		6.72	0.67		0.28	0.03
						Equipment	52.60	35.24		7.20	5.39		0.35	0.28
						South Salinas Scrapers	44.82	4.48		8.96	0.90		0.37	0.04
						Equipment	52.60	35.24		7.20	5.39		0.35	0.28
						Vineyard Creek Scrapers	16.81	1.68		3.36	0.34		0.14	0.01
						Equipment	52.60	35.24		7.20	5.39		0.35	0.28

(1) EF from Table A9-9 is 20.0
(2) From AP-42 Table 11.9-4 (TSP emission factor multiplied by 50% for PM10 and by 25% for PM2.5)
(3) From AP-42 Table 11.9-1
(4) From AP-42 Table 11.9-3 $s=6.9^{(4)}$ $S=7.1^{(4)}$ $M=7.9^{(4)}$
(5) From AP-42 Equation 1a $s=7.1^{(6)}$ k=1.5, a=0.9, b-0.45 for PM10
(6) From AP-42 Table 13.2.2-1
(7) Assume front end loader operation has similar emissions to grader
(8) From AP-42 Table 11.19.2-2

Table 3
Pankey Sand and Gravel
Diesel Equipment Emissions

Hourly Emissions (lbs)

	hp	ROG	CO	NOX	SOX	PM	CO2	CH4
Tractor	410	0.36	1.50	1.55	0.003	0.14	270.49	0.03
Loader	198	0.15	0.57	0.53	0.001	0.06	119.40	0.01
Screen	80	0.21	0.57	0.71	0.001	0.07	60.78	0.02
Totals		0.72	2.64	2.79	0.005	0.28	450.67	0.06

Daily Emissions (lbs)

	hp	ROG	CO	NOX	SOX	PM	CO2	CH4
Tractor	410	2.55	10.50	10.83	0.020	0.99	1893.40	0.23
Loader	198	1.04	3.97	3.69	0.009	0.44	835.79	0.09
Screen	80	1.44	4.02	4.99	0.005	0.50	425.49	0.13
Totals		5.03	18.49	19.52	0.034	1.93	3154.67	0.45

Annual Emissions (tons)

	Operating Ho	ROG	CO	NOX	SOX	PM	CO2	CH4
Tractor	580	0.11	0.43	0.45	0.001	0.04	78.44	0.01
Loader	1180	0.09	0.33	0.31	0.001	0.04	70.44	0.01
Screen	609.041	0.06	0.18	0.22	0.000	0.02	18.51	0.01
Totals		0.26	0.94	0.98	0.002	0.10	167.40	0.02

Note: Tractor emissions based on Tier III engine

Table 4
Pankey Sand and Gravel
Haul Road Emissions

Unpaved Road Emission Factor Algorithm[1]	
$E = k * (s/12)^{a} * (W/3)^{b}$	
Where E = emission factor in pounds per vehicle mile traveled (lbs/VMT)	
k = empirical constant	1.5 lb/VMT for PM10
k = empirical constant	0.15 lb/VMT for PM2.5
a = empirical constant	0.9 for PM10
b = empirical constant	0.45 for PM10
s = typical surface silt content	4.8 %

Note: Silt content decreased by 25% to account for application of low silt gravel on unpaved exit haul roads

[1] Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Chapter 13.2.2
[2] ibid, Table 13.2.2-2
[3] ibid, Table 13.2.2-1

Paved Road Emission Factor Algorithm[1]	
$E = k * (sL/2)^{0.65} * (W/3)^{1.5} - C$	
Where:	
E = emissions factor in grams per vehicle mile traveled	
k = empirical constant (lb/VMT for PM10)	0.016
k = empirical constant (lb/VMT for PM2.5)	0.0024
sL = typical surface silt content (g/m^2)	7.4
C = Emission factor for 1980's vehicle fleet (lb/VMT)	0.00047

[1] Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Chapter 13.2.1, reduced by 75% to account for additional watering & sweeping
[2] Table 13.2.1-1

		Unpaved Roads					
	Average Vehicle Weight	North Salinas Distance	South Salinas Distance	Vineyard Creek Distance	PM 10 Emission Factor	PM2.5 Emission Factor	Control Eff.
Light Duty Trucks	1.5	0.530	0.076	0.152	0.481	0.048	80
HDD Trucks	28.854962	0.530	0.076	0.152	1.821	0.182	80

Note: Distances are roundtrip onsite

Daily LDT Truck Trips 4

Daily HDD Truck Trips 17.8

Daily Emissions

	Unpaved Road Emissions					
	PM10			PM2.5		
	North Salinas	South Salinas	Vineyard Creek	North Salinas	South Salinas	Vineyard Creek
Light Duty Trucks	0.20	0.03	0.06	0.02	0.00	0.01
HDD Trucks	3.43	0.49	0.98	0.34	0.05	0.10

Totals	North Salinas	South Salinas	Vineyard Creek
PM10	3.63	0.52	1.04
PM2.5	0.36	0.05	0.10

Annual LDT Truck Trips 1040

Annual HDT Truck Trips 5275

Annual Emissions (tpy)

	North Salinas	South Salinas	Vineyard Creek
PM10	0.54	0.08	0.15
PM2.5	0.05	0.01	0.02

Table 5
Pankey Sand and Gravel
On-Road Diesel Emissions

Travel Distance Summary

	Roundtrip Distance (miles)	Average Speed (mph)
North Salinas Onsite Travel	0.5	25
South Salinas Onsite Travel	0.1	25
Vineyard Creek Onsite Travel	0.2	25
Offsite Travel Distance	25.0	55

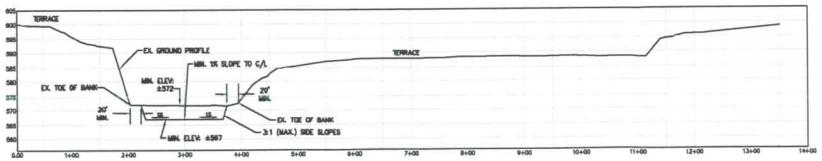
Heavy Duty Truck Emissions (lbs/day) Daily Trips 17.7524038

	ROG	CO	NOX	SOX	PM	CO2	CH4
North Salinas Onsite Travel	0.028	0.171	0.291	0.0004	0.013	40.593	0.0012
South Salinas Onsite Travel	0.004	0.024	0.042	0.0001	0.002	5.799	0.0002
Vineyard Creek Onsite Travel	0.008	0.049	0.083	0.0001	0.004	11.598	0.0004
Offsite Travel	1.230	11.310	13.246	0.015	0.620	10.114	0.027

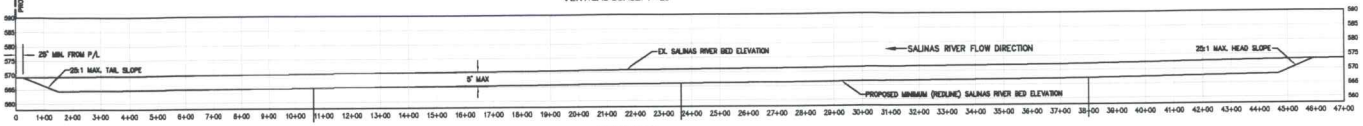
Heavy Duty Truck Emissions (tpy) Annual Trips 5275

	ROG	CO	NOX	SOX	PM	CO2	CH4
North Salinas Onsite Travel	0.0042	0.0255	0.0432	0.00006	0.0019	6.0310	0.00018
South Salinas Onsite Travel	0.0006	0.0036	0.0062	0.00001	0.0003	0.8616	0.00003
Vineyard Creek Onsite Travel	0.0012	0.0073	0.0123	0.00002	0.0005	1.7231	0.00005
Offsite Travel	0.1828	1.6803	1.9679	0.0022	0.0921	1.5027	0.0041

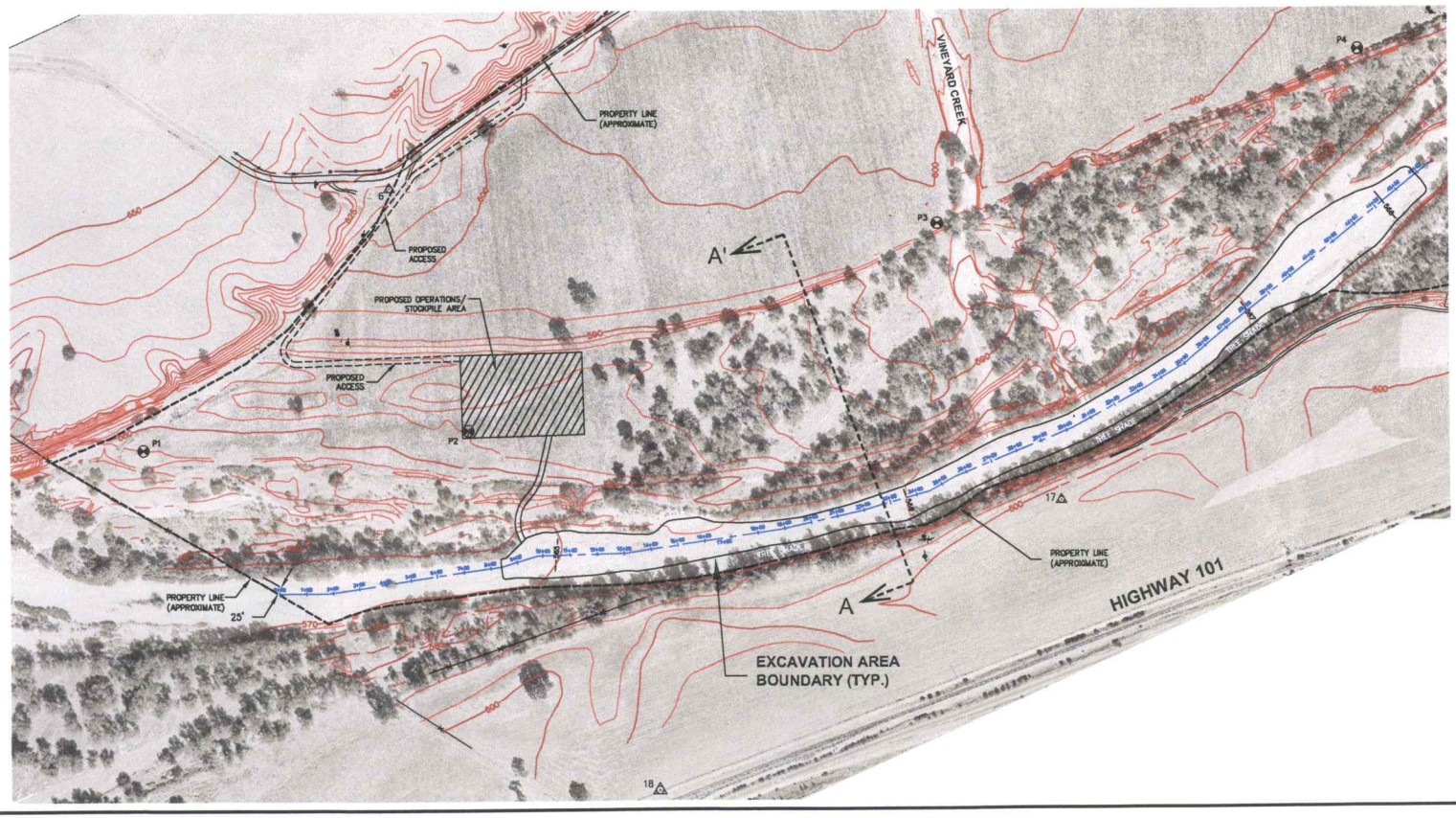
APPENDIX A
MAPS OF PROJECT SITE



SECTION A - A'
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=20'



PROFILE
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=20'



EXISTING CONTOURS ARE SHOWN AT 2 & 5 FOOT INTERVALS
ELEVATIONS ARE BASED ON NAVD 88 DATUM
COORDINATE BASIS: UTM UNIT 11
SURVEY DATA PROVIDED BY AERIAL PHOTOMAPPING SERVICES.
SURVEY DATED 10/19/2005, APS JOB# 25330

LEGEND

- CONTROL POINT (CP)
- PROPOSED GROUNDWATER PIEZOMETER
- 565 MINIMUM DESIGN CONTOUR ELEVATION
- FENCE
- POWER POLE

SURVEY CONTROL DATA

	NORTHING	EASTING	ELEVATION
CP #5	2248137S.67	5756769.48	613.30
CP #17	2478657.90	5756018.08	604.57
CP #18	2479416.74	5757365.95	607.29

EXCAVATION AREA DATA

1. SURFACE AREA WITHIN SHOWN EXCAVATION AREA LIMITS IS 11.36 ACRES.
2. LENGTH OF SHOWN EXCAVATION AREA IS 3,751 LINEAL FT.
3. MINIMUM DESIGN CONTOUR ELEVATIONS SHOWN ARE FOR MAXIMUM EXCAVATION DEPTH (REDLINED) CONDITION.

OPERATIONS AREA DATA

1. SURFACE AREA WITHIN SHOWN OPERATIONS AREA IS 3.1 ACRES.

NOTES

1. SHOWN EXCAVATION AREA LIMITS ARE ESTIMATED FROM AIR PHOTO AND TOPOGRAPHY DATA ON THIS SHEET, ACCORDING TO THESE PROPOSED SETBACKS AND MINING LIMITATIONS:

   MIN. 25 FT HORIZ. SETBACK FROM PROPERTY LINES;
   MIN. 20 FT HORIZ. SETBACK FROM TOES OF BANKS AND VEGETATED ISLANDS
   —OR—
   MIN. 10 FT HORIZ. SETBACK FROM RIPARIAN TREE DRIPLINE (WHICHEVER IS MORE RESTRICTIVE);
   MAX. 3:1 TRENCH SIDE SLOPES;
   MAX. 25:1 TRENCH HEAD AND TAIL SLOPES;
   MAX. 5 FT EXCAVATION BELOW EXISTING BED ELEVATION (REDLINE);
   MIN. 1 FT VERT. SETBACK FROM PRESENT GROUNDWATER TABLE.

2. SHOWN MINIMUM DESIGN ELEVATION CONTOURS ARE SHOWN ONLY ON THE BED OF MINING TRENCH FOR CLARITY.

3. SHOWN EXCAVATION AREA LIMITS AND MINIMUM DESIGN ELEVATION (REDLINE) CONTOURS ARE PRELIMINARY, FOR PERMIT REVIEW AND PROJECT PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION STAKING. SHOWN LIMITS AND (REDLINE) CONTOURS ARE SUBJECT TO CHANGE ACCORDING TO EXISTING SITE CONDITIONS AT THE ONSET OF MINING. ACTUAL LIMITS TO BE STAKED IN FIELD ACCORDING TO PERMITTED SETBACKS AND LIMITATIONS BY FIELD SURVEY FROM PERMANENT ESTABLISHED SURVEY BENCHMARKS PRIOR TO THE ONSET OF MINING AND GROUNDWATER TABLE MONITORING. REFER TO THE ADAPTIVE MANAGEMENT MONITORING PLAN FOR MORE INFORMATION.

geomorph

REV#	DATE	DESCRIPTION
1	5/21/09	PER 5/21/2009 PLAN DOC.
2	6/15/09	PLAN REVISIONS

DWG FILE:	San Miguel.dwg
DATE DRAWN:	3/04/09
DRAWN BY:	mjc
FIELD CHECK:	*
REVIEWED BY:	MS
PROJECT MANAGER:	MATT SMELTZER P.E.

PROJECT INFORMATION:

PANKEY
SAND AND GRAVEL MINING PROJECT

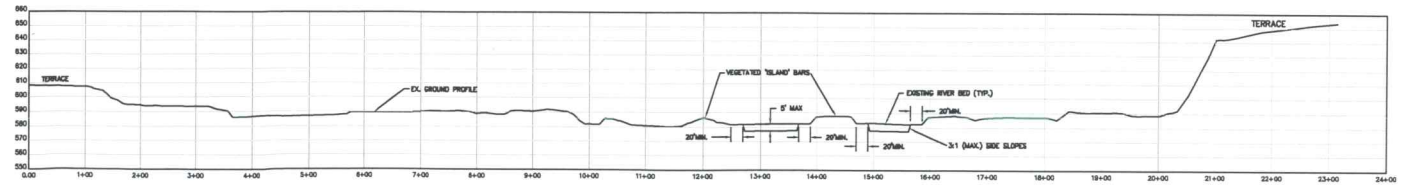
SALINAS RIVER AND VINEYARD CREEK
1444 INDIAN VALLEY ROAD, SAN MIGUEL CALIFORNIA
APN: 027-420-001, 002, 003, 005, 009, 010, AND 016

SHEET TITLE:
SALINAS RIVER NORTH EXCAVATION AREA

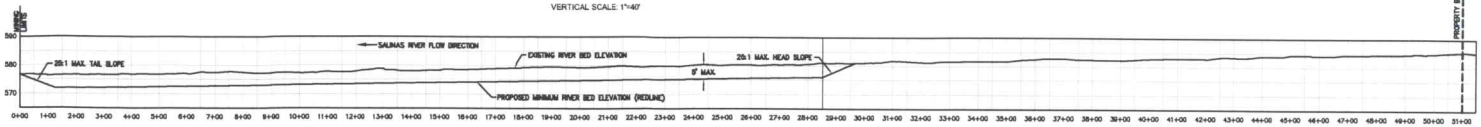
JOB NO.:
PANKEY-SALINAS

C-2
SHEET 2 OF 4

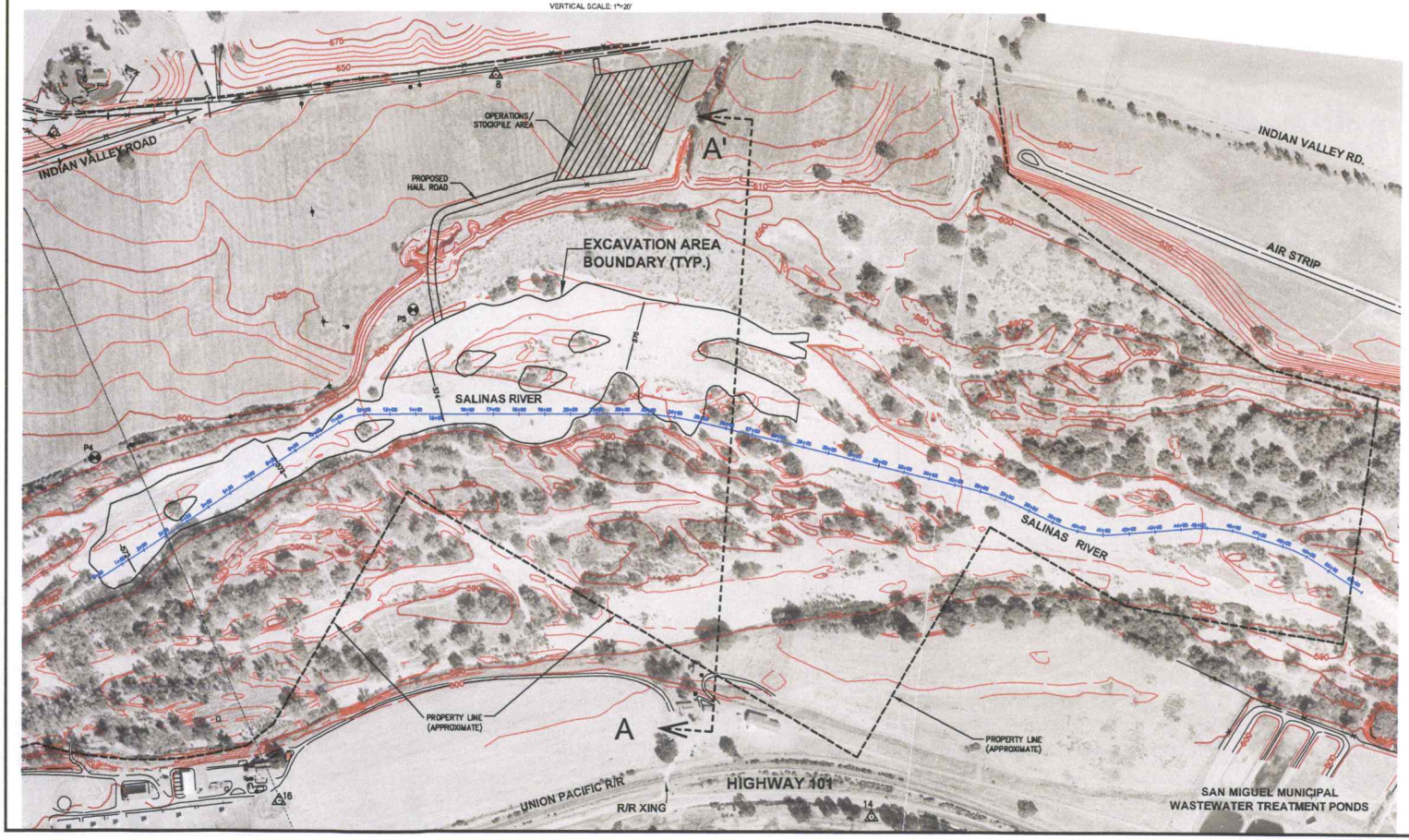
PRELIMINARY
FOR PERMIT REVIEW ONLY
NOT FOR CONSTRUCTION



SECTION A - A'
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=40'



PROFILE
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=20'



SCALE: 1" = 200'

0' 200' 400'

EXISTING CONTOURS ARE SHOWN AT 2 & 5 FOOT INTERVALS
ELEVATIONS ARE BASED ON NAVD 88 DATUM
COORDINATE BASIS: UTM UNIT 11
SURVEY DATA PROVIDED BY AERIAL PHOTOMAPPING SERVICES.
SURVEY DATED 10/19/2005, APS JOB# 25230

LEGEND

- CONTROL POINT (CP)
- PROPOSED GROUNDWATER PIEZOMETER
- 668 MINIMUM DESIGN CONTOUR ELEVATION
- FENCE
- POWER POLE

SURVEY CONTROL DATA

	NORTHING	EASTING	ELEVATION
CP #5	2477483.69	5763527.08	640.82
CP #16	2476829.25	5760735.37	601.67
CP #14	2474828.92	5761828.09	632.28

EXCAVATION AREA DATA

1. SURFACE AREA WITHIN SHOWN EXCAVATION AREA LIMITS IS 18.38 ACRES.
2. LENGTH OF SHOWN EXCAVATION AREA IS 2,865 LINEAL FT.
3. MINIMUM DESIGN CONTOUR ELEVATIONS SHOWN ARE FOR MAXIMUM EXCAVATION DEPTH (REDLINED) CONDITION.

OPERATIONS AREA DATA

1. SURFACE AREA WITHIN SHOWN OPERATIONS/STOCKPILE AREA IS 3.16 ACRES.

NOTES

1. SHOWN EXCAVATION AREA LIMITS ARE ESTIMATED FROM AIR PHOTO AND TOPOGRAPHY DATA ON THIS SHEET, ACCORDING TO THESE PROPOSED SETBACKS AND MINING LIMITATIONS:

   MIN. 25 FT HORIZ. SETBACK FROM PROPERTY LINES;
   MIN. 20 FT HORIZ. SETBACK FROM TOES OF BANKS AND VEGETATED ISLANDS
   -OR-
   MIN. 10 FT HORIZ. SETBACK FROM RIPARIAN TREE DRIPLINE (WHICHEVER IS MORE RESTRICTIVE);

   MAX. 3:1 TRENCH SIDE SLOPES;
   MAX. 25:1 TRENCH HEAD AND TAIL SLOPES;
   MAX. 5 FT EXCAVATION BELOW EXISTING BED ELEVATION (REDLINE);
   MIN. 1 FT VERT. SETBACK FROM PRESENT GROUNDWATER TABLE.

2. SHOWN MINIMUM DESIGN ELEVATION CONTOURS ARE SHOWN ONLY ON THE BED OF MINING TRENCH FOR CLARITY.
3. SHOWN EXCAVATION AREA LIMITS AND MINIMUM DESIGN ELEVATION (REDLINE) CONTOURS ARE PRELIMINARY, FOR PERMIT REVIEW AND PROJECT PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION STAKING. SHOWN LIMITS AND (REDLINE) CONTOURS ARE SUBJECT TO CHANGE ACCORDING TO EXISTING SITE CONDITIONS AT THE ONSET OF MINING ACTUAL LIMITS TO BE STAKED IN FIELD ACCORDING TO PERMITTED SETBACKS AND LIMITATIONS BY FIELD SURVEY FROM PERMANENT ESTABLISHED SURVEY BENCHMARKS PRIOR TO THE ONSET OF MINING, AND GROUNDWATER TABLE MONITORING. REFER TO THE ADAPTIVE MANAGEMENT MONITORING PLAN FOR MORE INFORMATION.
4. MINIMUM DESIGN (REDLINE) ELEVATIONS SHOWN ON PLAN, SECTION, AND PROFILE ARE ESTIMATED ACCORDING TO EXISTING BED ELEVATIONS ALONG THE STATIONING ALIGNMENT SHOWN ON THE PLAN.

geomorph

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DRAWN BY: mjc
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REVIEWED BY: MS
PROJECT MANAGER: MATT SMELTZER P.E.

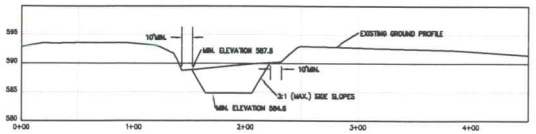
PROJECT INFORMATION:
PANKEY
SAND AND GRAVEL MINING PROJECT
SALINAS RIVER AND VINEYARD CREEK
1444 INDIAN VALLEY ROAD, SAN MIGUEL CALIFORNIA
APN: 027-420-001, 002, 003, 005, 009, 010, AND 016

SHEET TITLE:
SALINAS RIVER SOUTH EXCAVATION AREA

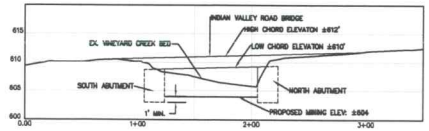
JOB NO.:
PANKEY-SALINAS

C-3
SHEET 3 OF 4

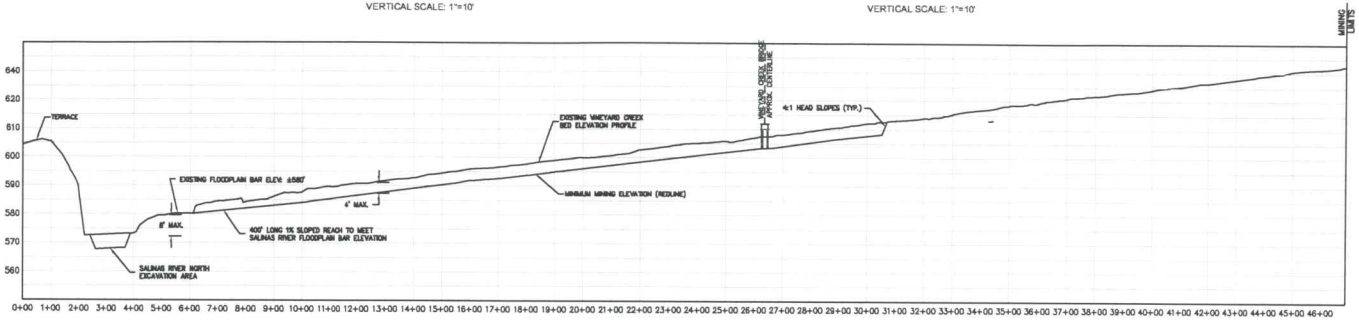
PRELIMINARY
FOR PERMIT REVIEW ONLY
NOT FOR CONSTRUCTION



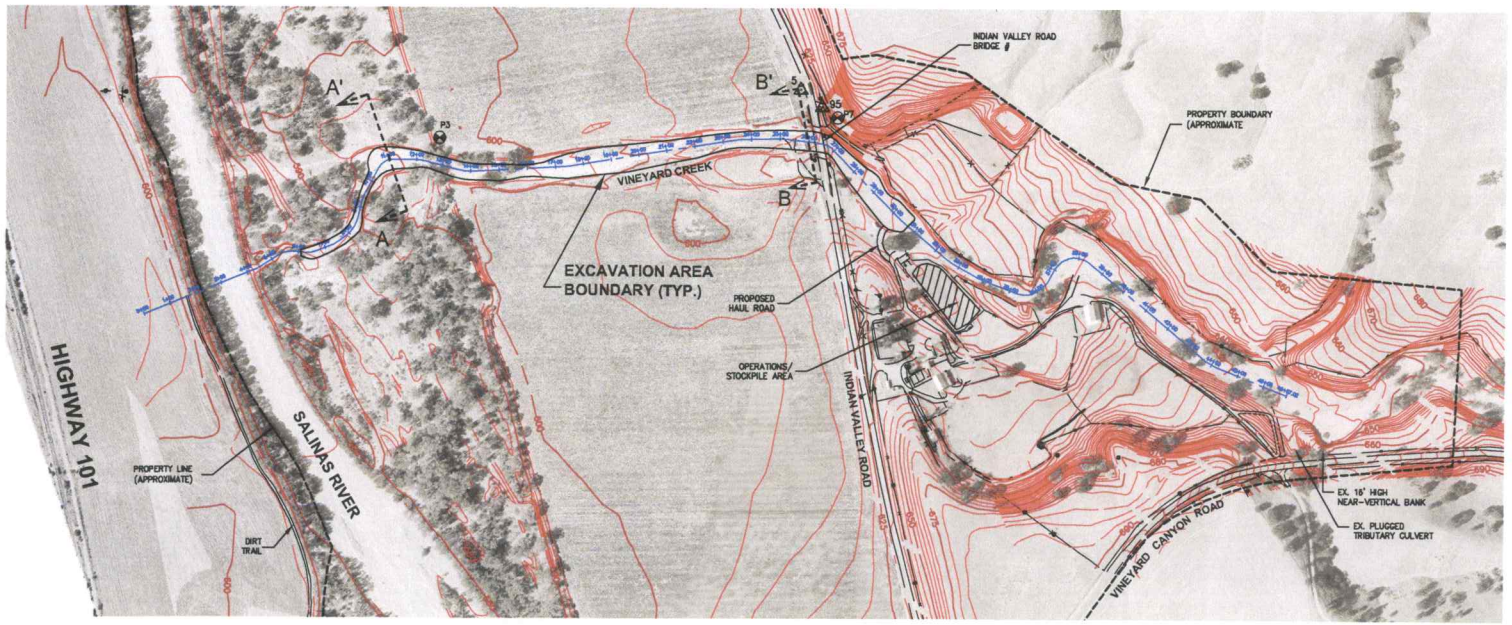
SECTION A - A'
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'



SECTION B - B'
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'



PROFILE
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=20'



SCALE: 1" = 200'

0' 200' 400'

EXISTING CONTOURS ARE SHOWN AT 2 & 5 FOOT INTERVALS
ELEVATIONS ARE BASED ON NAVD 88 DATUM
COORDINATE BASIS: UTM UNIT 11
SURVEY DATA PROVIDED BY AERIAL PHOTOMAPPING SERVICES.
SURVEY DATED 10/19/2006, APS JOB# 25230

LEGEND

- CONTROL POINT (CP)
- PROPOSED GROUNDWATER PIEZOMETER
- 668 MINIMUM DESIGN CONTOUR ELEVATION
- FENCE
- POWER POLE

SURVEY CONTROL DATA

	NORTHING	EASTING	ELEVATION
CP #5	2480422.84	5760611.85	612.96
CP #15	2480416.24	5760706.00	615.76

EXCAVATION AREA DATA

1. SURFACE AREA WITHIN SHOWN EXCAVATION AREA LIMITS IS 3.66 ACRES.
2. LENGTH OF SHOWN EXCAVATION AREA IS 2,460 LINEAL FT.
3. MINIMUM DESIGN CONTOUR ELEVATIONS NOT SHOWN FOR CLARITY. REFER TO PROFILE VIEW FOR EXCAVATION DEPTH (REDLINED) CONDITION.

OPERATIONS AREA DATA

1. SURFACE AREA WITHIN SHOWN OPERATIONS/STOCKPILE AREA IS 0.56 ACRES.

NOTES

1. SHOWN EXCAVATION AREA LIMITS ARE ESTIMATED FROM AIR PHOTO AND TOPOGRAPHY DATA ON THIS SHEET, ACCORDING TO THESE PROPOSED SETBACKS AND MINING LIMITATIONS:

   MIN. 25 FT HORIZ. SETBACK FROM PROPERTY LINES;
   MIN. 10 FT HORIZ. SETBACK FROM TOES OF BANKS AND VEGETATED ISLANDS
   -OR-
   MIN. 10 FT HORIZ. SETBACK FROM RIPARIAN TREE DRIPLINE (WHICHEVER IS MORE RESTRICTIVE);

   MAX. 3:1 TRENCH SIDE SLOPES;
   MAX. 4:1 TRENCH HEAD AND TAIL SLOPES;
   MAX. 5 FT EXCAVATION BELOW EXISTING BED ELEVATION (REDLINE);
   MIN. 1 FT VERT. SETBACK FROM PRESENT GROUNDWATER TABLE.

2. SHOWN MINIMUM DESIGN ELEVATION CONTOURS ARE SHOWN ONLY ON THE BED OF MINING TRENCH FOR CLARITY.
3. SHOWN EXCAVATION AREA LIMITS AND MINIMUM DESIGN ELEVATION (REDLINE) CONTOURS ARE PRELIMINARY, FOR PERMIT REVIEW AND PROJECT PLANNING PURPOSES ONLY. NOT FOR CONSTRUCTION STAKING.
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4. SPECIAL MINING INSTRUCTIONS APPLY AT THREE LOCATIONS IN THE VINEYARD CREEK EXCAVATION AREA:
   A. DRAINAGE. EXCAVATE MIN. 8-FT WIDE MIN 2-FT DEEP MIN. 1% SLOPED PILOT CHANNEL FROM NEAR THE UPSTREAM TERMINUS OF THE EXCAVATION AREA TO THE OUTFALL OF THE VINEYARD CANYON RD CULVERT FOR RELIEVING CULVERT SEDIMENTATION CAUSED BY CURRENT AGGRADED VINEYARD CREEK CHANNEL CONDITIONS AND IMPROVING FREE DRAINAGE OF CULVERT DISCHARGES TO VINEYARD CREEK. FIT SIDE SLOPES TO FIELD CONDITIONS AND NOT TO EXCEED 2:1. CONFORM WITH IMPLEMENTATION OF EROSION CONTROL AT THE OUTFALL AND GRADED BANKS AS REQUIRED AND SUPPLIED BY COUNTY DPW.
   B. CONVEYANCE. EXCAVATE VINEYARD CREEK BED IN VICINITY OF INDIAN VALLEY ROAD BRIDGE TO CONFORM WITH UNIFORM 604-FT MSL DESIGN BED ELEVATION WITHIN THE BRIDGE SECTION SPANNING FROM OUTSIDE ABUTMENTS AND IMPLEMENTATION OF EROSION CONTROL AS REQUIRED AND SUPPLIED BY COUNTY DPW. REFER TO AS-BUILT DRAWINGS OF T HE BRIDGE PROVIDED BY COUNTY DPW TO ENSURE THAT DESIGN BED ELEVATION WITHIN THE BRIDGE SECTION IS NOT CLOSER THAN 1 VERT. FT FROM THE TOE OF THE ABUTMENT AND PIER FOOTINGS, OR AS DIRECTED BY COUNTY DPW.
   C. CONFLUENCE. EXCAVATE VINEYARD CREEK BED NO STEEPER THAN 1% SLOPE BEGINNING AT LOCATION APPROX. 600 FT UPSTREAM FROM SALINAS RIVER BED AND ENDING AT LOCATION APPROX. 1,000 FT UPSTREAM FROM SALINAS RIVER BED. SHOWN FOR REDLINED CONDITIONS, A 400-FT LONG 1% SLOPED DOWNSTREAM VINEYARD CREEK BED DESIGN PROFILE MATCHES BETWEEN EXISTING APPROX. 580-FT VINEYARD CREEK BED ELEVATION WITHIN THE SALINAS RIVER FLOODPLAIN BAR SURFACE AREA AT LOCATION APPROX. 600 FT UPSTREAM FROM SALINAS RIVER BED AND THE APPROX. 584-FT DESIGN MINIMUM BED ELEVATION ON VINEYARD CREEK AT LOCATION APPROX. 1,000 FT UPSTREAM, AT THE INVERT OF A 4-FT DEEP TRENCH.

geomorph

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SALINAS RIVER AND VINEYARD CREEK
1444 INDIAN VALLEY ROAD, SAN MIGUEL CALIFORNIA
APN: 027-420-001, 002, 003, 005, 009, 010, AND 016

SHEET TITLE:
VINEYARD CREEK EXCAVATION AREA

JOB NO.:
PANKEY-SALINAS

C-4
SHEET 4 OF 4

APPENDIX B
EQUIPMENT SPECIFICATIONS

Machines
- » Articulated Trucks
- » Backhoe Loaders
- » Cold Planers
- » Compact Track and Multi Terrain Loaders
- » Compactors
- » Feller Bunchers
- » Forest Machines
- » Forwarders
- » Harvesters
- » Hydraulic Excavators
- » Industrial Loaders
- » Knuckleboom Loaders
- » Lift Trucks
- » Material Handlers
- » Motor Graders
- » Off-Highway Trucks
- » Paving Equipment
- » Pipelayers
- » Road Reclaimers
- » Skid Steer Loaders
- » Skidders
- » Telehandlers
- » Track Loaders
- » Track-Type Tractors
- » Underground Mining
- » Wheel Dozers
- » Wheel Excavators
- » Wheel Loaders
  - › Compact Wheel Loaders
  - › Small Wheel Loaders
  - › Midsize Wheel Loaders
    - · 938H
    - · IT38H
    - · 950H
    - · 962H
    - · IT62H
    - · 966H
    - · 972H
    - · 980H
  - › Large Wheel Loaders
- » Wheel Tractor-Scrapers

Work Tool Attachments

Engines

Allied

Used Equipment

Power Generation

--- Select a Model ---

IT38H INTEGRATED TOOLCARRIER

Overview Specifica Benefits & Features Standard Optional Equipme Work Tool Attachm Machine Compari

SPECIFICATIONS

Units: **US** | **Metric**

Engine	
Net Power - ISO 9249	180 hp
Engine Model	Cat6.6 ACERT?
Net Power - 80/1269/EEC	180 hp
Gross Power - SAE J1995	197 hp
Net Power - SAE J1349	178 hp
Peak Torque (Net) @ 1,400 RPM	620 ft-lb
Total Torque Rise	38 %
Bore	4.1 in
Stroke	5 in
Displacement	402.8 in3
Weights	
Operating Weight	33190 lb
Buckets	
Bucket Capacities	2.3 - 3.0 m3 3.0 - 4.0 yd3
Max Bucket Capacity	4 yd3
Operating Specifications	
Static Tipping Load, Full Turn	22207 lb
Breakout Force	27576 lb
Transmission	
Forward 1	5 mph
Forward 2	9.1 mph
Forward 3	15.8 mph
Forward 4	26.8 mph
Reverse 1	5 mph
Reverse 2	9.1 mph
Reverse 3	15.8 mph

IT38H Integrated Toolcarrier
» **Download Product Brochure**

Challenger MT800C/MT900C

Challenger MT800C/MT900C

We're up to
The Challenge

MT800C/MT900C SERIES

410 to 585 Engine HP

Meet the Technologically Advanced "C" Series

For more than two decades, Cat®-powered Challenger tractors have been hard at work in some of the world's most demanding and challenging conditions. Whether it's involved hauling supplies over the ice in Antarctica, building American roads and interstate highways or pulling a chisel plow or air seeder on North America's most productive farms, Challenger tractors have been providing power and productivity at new levels of efficiency.

Now, Challenger is raising the bar even higher with the introduction of the MT800C Series track tractors and MT900C four-wheel-drive articulated tractors. Both lines are loaded with new features and improvements designed to make you even more productive and efficient.

- New digital dash display that's easier to read and now indicates selected gear, ground speed and service hours.
- Redesigned Tractor Management Center that provides simpler, more intuitive operation.
- New hydraulic system with a higher degree of control, higher flow and greater adaptability.
- An integrated ISOBUS control system that helps optimize productivity and performance of the tractor and any attached ISOBUS compliant implements.
- New horsepower levels that push the MT800C and MT900C models to a new plateau…where they continue to reign as the highest-horsepower, commercially available tractors in the world.
- Best of all, they're still sold, serviced and backed by the legendary network of Caterpillar dealers.

The Challenger Difference

There are currently more than 20,000 Challenger track tractors in use worldwide in all types of crops and environments, providing clear evidence of their strength and durability.

Nine Models in Five Sizes

Model	Gross Engine HP	PTO HP
MT835C	410 (306 kW)	335 (249 kW)
MT845C/MT945C	440 (328 kW)	360 (268 kW)
MT855C/MT955C	475 (354 kW)	385 (287 kW)
MT865C/MT965C	525 (391 kW)	425 (316 kW)
MT875C/MT975C	585 (436 kW)	425 (316 kW)

Moving Forward Toward A Bright Future

For more than 20 years, the Challenger name and logo have been synonymous with track tractor performance. However, today's Challenger equipment line goes far beyond track tractors and reduced compaction. These days, your Challenger dealer also carries a rugged line of wheel tractors from 45 to 585 engine horsepower; a high-quality family of hay equipment and a full line of Challenger combines.

It all started in March 2002, when AGCO Corporation acquired the highly respected Challenger line of track tractors from Caterpillar® and began expanding it into a full line of farm machinery. Equally important, Challenger partnered with Caterpillar and the Cat® dealer organization to develop the highest level of customer satisfaction in the world. Nobody commands more respect for their integrity, in-field service and parts support than the Cat dealer network.

No wonder Challenger is the fastest-growing equipment brand in North America. Quality products backed by impeccable dealer support. That's what it's all about in today's farming environment.

Built In America

Challenger track tractors are manufactured with careful attention to detail in the small town of Jackson, Minnesota. It's a community with strong agricultural ties and a place where employees understand that quality can't be inspected in...but rather has to be built-in.

Specifications

Scraper Bowl

Capacity - Heaped	14.3 m^3 / 18.8 yd^3
Width of Cut, to Router Bits	3200 mm / 10.5 ft
Rated Load	20800 kg / 45900 lb
Capacity - Struck	9.9 m^3 / 13.0 yd^3
Depth of Cut - Max	203 mm / 8.0 in
Ground Clearance - Max	533 mm / 21.0 in
Cutting Edge - Thickness	22 mm / .87 in
Depth of Spread - Max	610 mm / 24.0 in
Apron Opening	1600 mm / 63.0 in

Dimensions

Width - Inside of Bowl	3048 mm / 120.0 in
Width - Outside Rear Tires	3099 mm / 122.0 in
Width - Outside Bowl	3378 mm / 133.0 in
Height - Overall Shipping	2362 mm / 93.0 in
Height - Floor to Top of Ejector	1930 mm / 76.0 in
Height - Sidewall	1219 mm / 48.0 in
Height - Ground to Cutting Edge - Max	657 mm / 25.9 in
Length - Max	8915 mm / 351.0 in
Length - Floor	1295 mm / 51.0 in

Brakes and Tires

Brake Type	Dry - Disc
Calipers, Lead - qty	2 per side
Calipers, Follow - qty	1 per side
Tires - qty	2
Tire - Standard	29.5R25
Tire - Optional	875 65R29

Weights

Empty Weight	11784 kg / 25900 lb
Distribution, Empty - Tongue	28%
Distribution, Empy - Axle	72%
Distribution, Loaded - Tongue	29%
Distribution, Loaded - Axle	71%

Hydraulics

Bowl Cylinder Bore	127 mm / 5.0 in
Bowl Cylinder Stroke	508 mm / 20.0 in
Apron Cylinder Bore	102 mm / 4.0 in
Apron Cylinder Stroke	813 mm / 32.0 in
Ejector Cylinder Bore	127 mm / 5.0 in
Ejector Cylinder Stroke	1372 mm / 54.0 in

Pull Unit Recommendations

Steel Track-Type Tractor, Single Scraper	Caterpillar D7R
Steel Track-Type Tractor, Tandem Scrapers	Caterpillar D8T
Rubber Tracked Agricultural Tractor, Single Scraper	224 - 298 kW (300 - 400 hp)
Rubber Tracked Agricultural Tractor, Tandem Scrapers	298 - 373 kW (400 - 500 hp)
Rubber Tired Agricultural Tractor, Single Scraper	224 - 298 kW (300 - 400 hp)
Rubber Tired Agricultural Tractor, Tandem Scrapers	298 - 373 kW (400 - 500 hp)
Hydraulic Services Required - Single Scraper	2
Hydraulic Services Required - Tandem Scrapers	4

E-Ject™ Systems E-17 Towed Scraper

The E-Ject™ Systems E-17 Towed Scraper combines outstanding performance with unmatched durability. Originally designed by a road construction contractor for the construction industry, the E-17 is built to perform in tough jobsite conditions — load after load.

Highlights

- High-strength, abrasion-resistant steel is used inside the bowl on the floor, walls, apron and ejector face for maximum strength and wear life. The bowl uses a six-cell box-section design for superior strength and dent resistance.
- Every E-Ject™ Towed Scraper is equipped with standard heavy-duty, dry-disc brake calipers to ensure effective stopping from safe operating speeds. Standard radial tires provide maximum flotation and durability.
- The bolted hitch design eliminates pin wear. The tongue's robust, straight-line design efficiently transfers maximum power to the cutting edge for outstanding performance.
- Cutting edges and router bits from legendary Caterpillar® Wheel Tractor Scrapers are used. As cutting edges wear, they can be rotated by 180 degrees — doubling their wear life.
- The E-17 can adapt to jobsite conditions. The E-17 can be pulled in single or tandem configurations, top loaded with an excavator, or – on an intermittent basis – be push loaded with a track-type tractor.
- Ideally suited to be pulled by Cat® Track-Type Tractors and Challenger® Special Application Tractors. E-Ject Towed Scrapers are available exclusively through Caterpillar dealers.

For more information, call your local Caterpillar dealer or visit us on the Web at www.ejectsystems.com.

Turbines
Electronics
OEM Solutions
Technology
Gifts & Apparel

Hydraulic System	
Steering System Pump Type	Piston
Hydraulic Cycle Time - Raise	5.4 Seconds
Hydraulic Cycle Time - Dump	1.4 Seconds
Hydraulic Cycle Time - Lower, Empty, Float Down	2.7 Seconds
Hydraulic Cycle Time - Total	9.5 Seconds
Pilot System - Pump Output	77.9 gal/min

Brakes	
Brakes	Meets required standards

Axles	
Front	Fixed front
Rear	Oscillating +/-12
Maximum Single-Wheel Rise and Fall	17 in

Tires	
Tires	Choose from a variety of tires to match your application.

Cab	
ROPS/FOPS	Meets SAE and ISO standards.

Service Refill Capacities	
Fuel Tank - Standard	65.3 gal
Cooling System	9.5 gal
Crankcase	4.6 gal
Transmission	11.4 gal
Differentials and Final Drives - Front	15.1 gal
Differentials and Final Drives - Rear	14 gal
Hydraulic Tank	23.5 gal

SCREEN MACHINE INDUSTRIES, INC.

AN AMERICAN MANUFACTURER OF PORTABLE CRUSHING, SCREENING/SHREDDING PLANTS & CONVEYORS

Screen Machine Industries, Inc. is an innovative American manufacturer of portable machinery dedicated to material crushing, screening, washing and stockpiling. Our product offering provides production solutions across a vast array of applications ranging from 15 – 600 tons/yards per hour (sand & gravel, concrete & asphalt, topsoil & compost products…just to name a few). Our engineering design philosophy of incorporating only industry leading brand name components and feature rich competitive advantages has prominently influenced our 40 years of success. We invite you to discover why our track mobile impact crushers, vibratory screening/shredding plants, trommel screening/shredding plants, vibratory scalping plants and radial stacking conveyors are shipped throughout the world as the preferred choice of distributors and customers.

Screen Machine Industries, Inc. Corporate Headquarters

An ongoing construction program of building new factories and additions is necessary to keep up with the expanding range of products and markets. Screen Machine Industries, Inc. recently completed a major expansion with a new 90,000 square foot addition to the existing facility. This expansion has allowed Screen Machine Industries, Inc. to double its total manufacturing capacity, ensuring that we meet the heavy demand for products today and into the future.

The manufacturing process includes the utilization of high definition plasma tables, CNC fabrication equipment, advanced painting facilities and highly skilled mechanical technicians assembling these machines. Multiple levels of quality control and thorough run-time inspections are in place to ensure the quality and reliability that we demand and that you expect.

Screen Machine Industries, Inc. continues to make substantial investments in research and development. We utilize the newest and best in 3-dimensional drawing tools. Screen Machine Industries, Inc. uses the latest version of SolidWorks™ at all engineering stations. Our highly skilled engineers, combined with the latest computer technology, create the most innovative products in the screening industry. Numerous US Patents have been awarded as a result of our creative ambition in developing machinery superior to any in the world. We strive to add the best design engineers to our organization. Several of our engineers are graduates of M.I.T. and other prestigious universities throughout the United States. Our machines are designed to handle the most rugged demands our customers require. This focus on heavy-duty design allows Screen Machine Industries to produce the best machines possible.

Our diverse product line families consist of heavy duty portable Impact Crushers, Spyders, Scalper Series, Trommel Series and Conventional Screening and Shredding Plants. Portable Radial Stacking Conveyors complete the product line with sizes available to fit most every job.

MULTIPLE US PATENTS

SCALPER 107T

4043T IMPACT CRUSHER

SPYDER 516T

SCREEN MACHINE INDUSTRIES, INC
10685 Columbus Parkway
Pataskala, Ohio 43062
740-927-3464 800 - 837 - 3344
www.screenmachine.com

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THE SCREEN MACHINE®

AN AMERICAN MANUFACTURER OF PORTABLE CRUSHING, SCREENING /SHREDDING PLANTS AND CONVEYOR

SCALPER 77C

35 amps HAP wire

10m Producer Plant 3-4 yards/hr
4x8 Dusk Deck
HP. 80
250 tons/h

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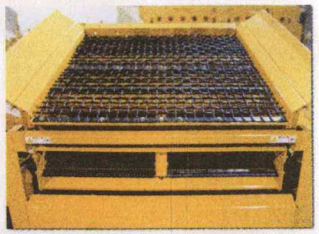
740-927-3464 800-837-3344 WWW.SCREENMACHINE.C

THE SCREEN MACHINE®

KEY FEATURES

SCREEN BOX



- **7'-0" x 7'-0" Double Deck Two Bearing Screen**
  Top deck is 7'-0" wide by 7'-0" long creating 49 square feet of screening surface.
  Bottom deck is 7'-0" wide by 6'-0" long split screen creating 42 square feet of screening surface.
  The screen features a combination of a heavy aggressive shake with the ability to reverse the direction of the screen, giving the versatility needed for processing multiple types of materials.

- **Wide Feed Opening with Low Feed Height**
  9'-9" wide opening above the shaker screen permits a comfortable loading target for up to a two yard loader bucket.
  A low feed height of 8'-3" allows loaders to dump material onto the shaker screen without the need to build a ramp.

- **USA Grade 80 Steel Construction**
  The shaker screen, bolted together with USA sourced high strength 3/8" (10mm) Grade 80 steel, will handle the vibratory stress better than imported screens typically made with a mild grade of steel.

- **Screen Box Features a Large 10 1/2" Clearance Between the Top and Bottom Deck**
  Large screen openings (up to 6") on the top deck are supported and pose little risk of rock hang-ups.
  Oversize throughput from large openings would otherwise tend to bridge between the decks in the absence of a large 10 1/2" clearance.

- **Multiple Screen Choices Are Available for Top and Bottom Decks**
  T-1 tapered *grizzly* spaced at 5" or 6" for your heaviest rock and materials.
  Grade 80 *punch plate* 4", 5" or 6" hex for heavy-duty work.
  Square woven *wire cloth* in multiple sizes for most general applications.
  Finger screen decks available for materials with vegetation.
  Bottom deck screen box accepts wire cloth, harp style screens and finger screens.

RETRACTED
(SLOW)

EXTENDED
(FAST)

- ***Smooth Start*® Technology** (US Patent # 6,401,933)
  At slow speeds, the screen shaft rotates perfectly round, creating no throw (or shake) at all. As the screen shaft RPM approaches operating speed, the counterweight extends outward creating the appropriate shake necessary to screen your material. This process also works in reverse during your machine shutdown.
  Smooth Start® technology eliminates the otherwise present risk of machinery damage caused by slow speed violent shaking during your warm-up or shut-down periods. This fine example of American ingenuity is patented to deliver exclusive long term value by extending the life of the bearings and components.

STRUCTURE

- **USA Grade 80 Steel Construction**
  All structural supports and wear surfaces are manufactured from high strength Grade 80 steel generating a yield strength of 80,000 psi. That's more than two times the yield strength of A36 steel (36,000 psi) commonly used in most other machinery. This single feature alone could double your machine's structural life span.

- **Hydraulic Landing Gear and Axle Lifts Entire Machine for Easy Clean-Out**

- **American Made near Columbus, Ohio with American Steel and Labor**

PORTABILITY

- **Conveyor Hydraulically Folds Creating a Short Overhang During Transport**
- **Single Axle with Dual 255/70R22.5 Tires and Air Brakes**
- **Hydraulic Axle Raise and Lower**
- **Hydraulic Landing Gear**
- **Transport Features Include: Mudflaps, Fenders, Direction Lights and Brake Lights**
- **Standard Fifth Wheel Tow Configuration**
- **High Ground Clearance Allows Easy Towing Throughout the Jobsite Terrain**
- **Optional Bolt-on Pintle Hook Arrangement Available**

Specifications Subject to Change Without Notification

THE SCREEN MACHII

CONVEYOR

- **36" Wide Main Discharge Belt**
  Hydraulically folds and extends for quick set-up and tear-down.

- **Material Stockpiling Height 11'-5"**
  Creates a conical pile of approximately 110 cubic yards

- **Four Guide Rollers Are Mounted for Centered Belt Tracking**

- **5" Diameter Heavy-Duty Goodman® CEMA "C" Idlers**
  Large screen openings drop heavy material requiring heavy-duty idlers tough enough to last.

- **Precision® Lagged-Head and Wing-Tail Pulleys**
  A wrapped and raised wing-tail pulley keeps the pulley off the ground and high above any material buildup.

- **Rubber Disc Return Idlers Prevent Any Material Build-Up On The Rollers**

- **Remote Grease Lines for Easy Lubrication**

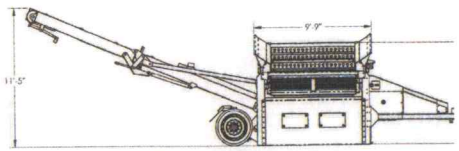
POWER SYSTEM

- **Yanmar® 48 HP Diesel Engine**
- **42 Gallon** (159 liters) **Lockable Hydraulic Tank with Oil Cooler and Hydraulic Temperature Shut-down**
- **40 Gallon** (151 liters) **Diesel Fuel Tank Will Generate 25 Continuous Hours of Run Time**
- **Unique Engine Compartment Design Allows Quick Access for Engine Maintenance**
- **Hydraulic Valves and Control Panel are Well Protected Inside Engine Compartment**

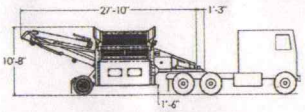
PRODUCT SUPPORT

- **Factory Headquarters Located Near Columbus, Ohio**
- **Lifetime Toll Free Engineering Telephone Support** (USA Only)
- **Rapid Response Parts Availability**
- **Detailed Operational, Service & Parts Manuals**

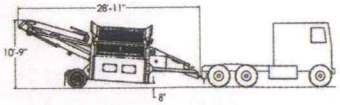
DIMENSIONS



Standard Operating Position



Fifth Wheel Tow Transport



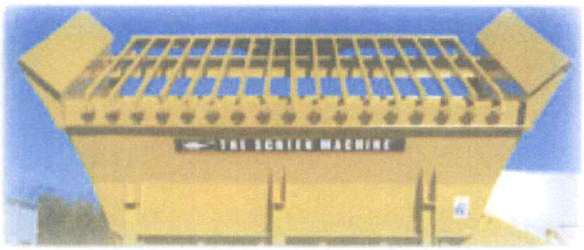
Pintle Hook Tow Transport

Shipping Information

Width	7' - 8" (2.34 m)
Weight (approx.)	18,000 to 20,00
	(8,165 - 9,072

THE SCREEN MACHINE®
PULVERIZE II

FEEDER



- **3 Cubic Yard Hopper with 10' - 3" Wide Feed Opening**
  A perfect match for a one to two cubic yard front end loader.
- **Manual Tipping Grizzly**
  Grizzly keeps oversized rocks and wood larger than 4 3/4" from entering the hopper.
- **18" Wide Feeder Belt with 2-Ply 220 PIW**
  Heavy duty belt for long wear life.
- **Variable Belt Speed**
  Hydraulically controlled belt speed creates a consistent and accurate feed rate of material to the shredder or screen.

CONVEYOR BELT

- **18" Wide Main Belt**
  Heavy duty 2-ply 220 PIW belt for long wear life.
- **Lagged-Head Pulleys and Wing-Type Tail Pulleys**
  Precision® pulleys for positive traction, alignment and belt cleanliness.
- **4" Diameter Idlers and Rubber Disc Returns**
  Goodman® idlers provide the required strength to carry the load.

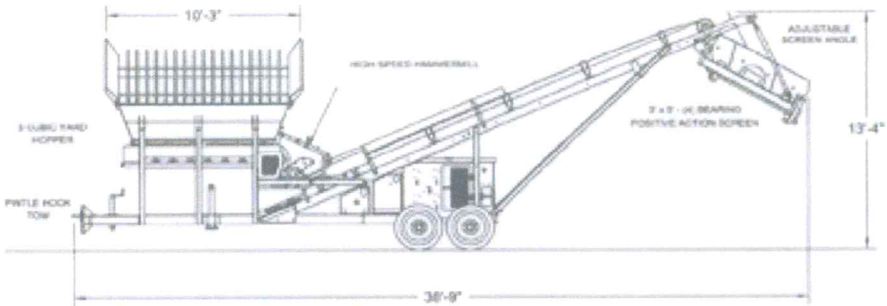
OPTIONS

- **Hydraulic Conversion Kits**
  Capable of powering up to two additional 30'-0" or 40'-0" radial stacking conveyors creating product piles up to 20'-0" high.
- **Spray Bar Assembly**
  The addition of spray bars to the screen will allow you to wash your materials.

DIMENSIONS

Shipping Information

Height	13' - 2"	(4.01m)
Length	38' - 9"	(11.81m)
Width	8' - 0"	(2.44m)
Weight (approx.)	9,500 lbs.	(4,309 KG)



Specifications Subject to Change Without Notification

Cat® Engines

Stretch The Limits On Horsepower

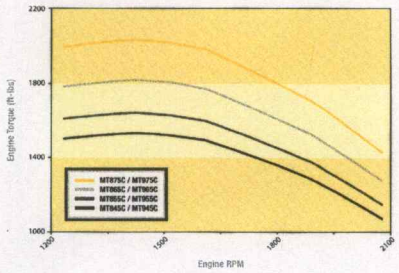
It only takes one word to describe the strength, power and performance of the Challenger MT800C/MT900C powerplant — Caterpillar®.

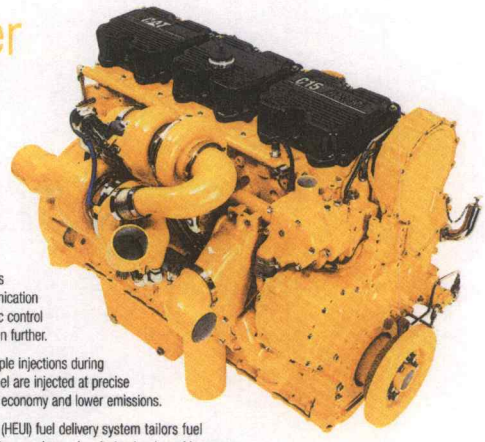
Featuring the latest ACERT® technology, the Cat® engines used in both the MT800C and MT900C Series models meet all mandated Tier III emissions requirements…without sacrificing performance, durability or reliability.

Equally important the Cat C15 and C18 used in the MT800C and MT900C Series models have already proven to be both efficient and reliable in literally thousands of off-road applications by Caterpillar and a host of other heavy equipment and truck manufacturers.

The Challenger MT835C, MT845C, MT855C, MT945C and MT955C each feature a Cat C15 diesel engine with a 15.2-liter (923-cu.-in) displacement, while the MT865C, MT875C, MT965C and MT975C boast a massive 18.1-liter (1,106-cu.-in.) Cat C18 ACERT diesel — the largest displacement agricultural tractor engine on the market.

With up to 42% engine torque rise, the Cat® C15 and C18 ACERT engines deliver exceptional pulling power in all conditions. Under heavy loads, the MT875C and MT975C, for example, have the ability to generate more than 630 engine horsepower (470 kW) — more than any other tractor in its class.





Advanced Engine Control

The ADEM® 4 electronic control system enables smooth power delivery by coordinating communication between the engine and transmission electronic control modules, taking diesel engine performance even further.

- A more efficient fuel system allows for multiple injections during each combustion cycle. Small amounts of fuel are injected at precise times to achieve the combined goals of fuel economy and lower emissions.
- The patented Hydraulic Electric Unit Injector (HEUI) fuel delivery system tailors fuel injection rates to operating conditions, reduces noise and emission levels,and improves fuel economy.
- Mid-support of the cylinder liners decreases vibration, which, in turn, reduces engine noise and wear on the cylinders and cylinder liners.

Engine Speed Memory

New to the "C" Series is an engine speed switch that allows the operator to select two memory settings for consistent engine speed during field operations and/or headland turns.

The Challenger Difference

The real test of an engine is in its ability to maintain power while lugging through tough spots and encountering heavy loads. With continued torque rise down to 1,400 RPM, the MT800C/ MT900C Series models have the built-in reserve that today's farmers demand.